

Trend Study 13B-6-00

Study site name: Ryan Creek .

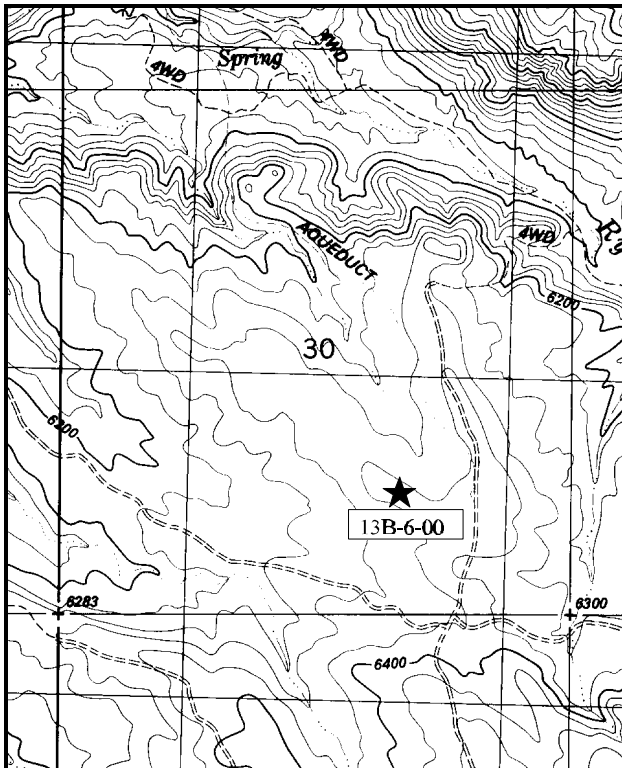
Range type: Chained, Seeded P-J

Compass bearing: frequency baseline 165°M.

Footmark (first frame placement) 5 feet, footmarks (frequency belts) line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

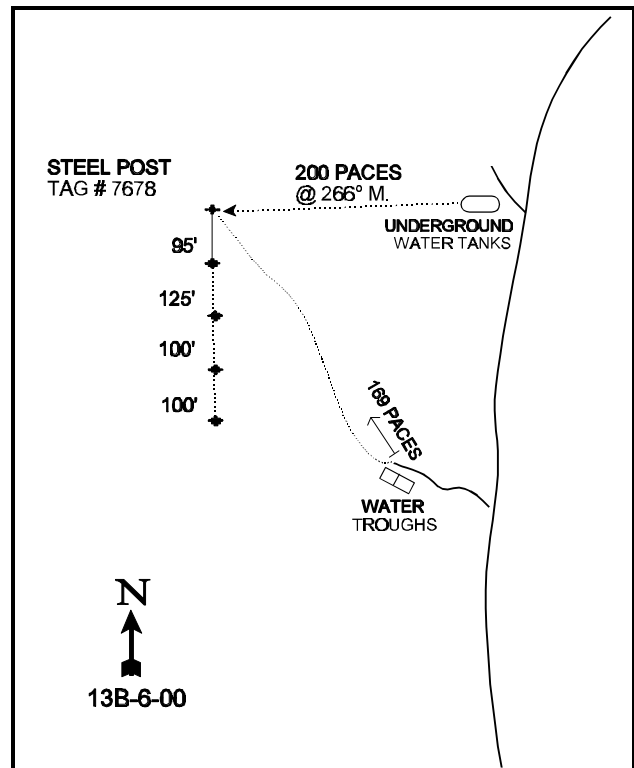
LOCATION DESCRIPTION

At the "Granary" intersection just south 1.35 miles south of Buckhorn Draw, 13B-5-00 (Coates Creek 15-minute Quad; T23S, R25E, southeast quarter of section 3) bear left and go east 0.7 miles to a fork. Take the middle fork, go 2.4 miles and turn right at the next fork. Continue 0.7 miles to another fork. Turn left. Go 0.65 miles to a cattle guard. Continue 1.5 miles to a fork. Bear left and go 0.2 miles to a water development on the left. Drive up to the water troughs. From here, go up the small ridge to the west for 200 paces to a full high fence post with browse tag #7678 attached. This fence post, the 0-foot baseline stake, can also be located from the nearby underground water tanks by going 1060 feet on a bearing of 266°M degrees true from the tanks. The transect runs south from the start of the baseline. All other plots are marked by rebar stakes.



Map Name: Steamboat Mesa

Township 22S , Range 26E , Section 30



Diagrammatic Sketch

UTM 4302649.514 N, 666581.630 E

DISCUSSION

Trend Study No. 13B-6 (34-6)

The Ryan Creek transect is located within an old 1,800 acre pinyon-juniper chaining, which in the past had been considered an important big-game winter range. The area was chained and aerially seeded with crested wheatgrass, four-wing saltbush, big sagebrush, alfalfa, and bitterbrush in 1968. To help maintain the integrity of the chaining, the BLM used the herbicide tebuthiuron to eliminate the released population of pinyon-juniper trees on 300 acres of the chaining. The area has burned in 1989 which eliminated nearly all of the browse on the site. The study is located near the top of a south-facing slope at an elevation of 6,300 feet. A nearby deer pellet group transect in Ryan Park, on the Utah side, averaged 8 deer days use/acre (20 ddu/ha) between 1986 and 1996. Pellet group data taken along the trend study site base line in 2000 estimated 20 deer days use/acre (49 ddu/ha), 9 elk days use/acre (22 edu/ha), and 10 cow day use/acre (25 cdu/ha). Cattle grazing occurs as part of the large Buckhorn allotment.

The area is characterized as an upland shallow loam site. The surface soil has a sandy clay loam texture. Effective rooting depth is just over 14 inches. Soil reaction is neutral (pH 7.3). The low amount of phosphorus (7.7ppm) could be limiting as 10ppm is thought necessary for normal plant development and growth. The amount of bare ground has increase substantially from 13% in 1995 to 35% in 2000. However, the vegetation and litter still provides adequate protection for the soil and there is no evidence of noticeable erosion.

The pinyon and juniper trees and a very low density of miscellaneous browse were eliminated from the site when it burned. Previously the estimated combined density of pinyon and juniper trees was about 198 trees/acre. The most numerous shrubs on the site after the burn are Harriman's yucca, broom snakeweed, white stemmed rabbitbrush, and a few scattered fourwing saltbush. The estimated cover for all browse species combined is less than 1% cover. With the loss of the browse species, this site is no longer important as critical winter range for wildlife.

In 1995, grasses contributed to 80% of the total vegetative cover with the dominant understory species being cheatgrass. At that time it contributed 74% of the grass cover and being very dense it had the potential of carrying another destructive fire. However, currently ('00) it only makes up 9% of the grass cover with the very dry year we have experienced in 2000. Without the competition with cheatgrass, crested wheatgrass has gone from providing 22% to currently 79% of the total grass cover. Other grass species include; Indian ricegrass, galleta, purple threeawn, mutton bluegrass, and bottlebrush squirreltail. In 1995, forbs were composed primarily of annual species (51%). Now with dry conditions, only 14% of the forbs are annual species. The dominant perennial forb in 1995 was heath aster which doesn't provide much forage for wildlife or livestock. With the current survey, alfalfa is the dominant forb, providing 54% of the forb cover. It continues to appear very robust and vigorous.

1986 APPARENT TREND ASSESSMENT

Density of desirable browse species for deer is very low with little recruitment into their respective populations. However, there is good quantities of forage produced by the crested wheatgrass for the spring and fall. It will be interesting to follow the effects of the Savory grazing system on this particular chaining. Continued maintenance of the pinyon-juniper trees on this chaining is desirable for improving the health of the understory vegetation. Apparent trend for the site is stable, but will be greatly affected by ongoing management decisions and weather patterns.

1995 TREND ASSESSMENT

There is adequate cover provided by vegetation and litter to protect the soil surface from erosion. Therefore, the soil trend is considered stable. The herbaceous understory is comprised mostly of annual forbs and grasses, the majority of which is cheatgrass. Crested wheatgrass is abundant as well and may provide some forage later into the fall with some late precipitation. Tumble mustard is quite prevalent and most were knee high in height. The vegetation provides abundant fine fuels for another wildfire. Trend for the herbaceous understory is down because of the poor composition. There are very few, if any browse species that could provide winter forage for wildlife, so the trend for browse is down.

TREND ASSESSMENT

soil - stable (3)

browse - down (1) with the loss of the browse to wildfire

herbaceous understory - downward (1) because of poor composition

2000 TREND ASSESSMENT

Protective ground cover has declined since 1995 while percent cover of bare ground has more than doubled from 13% to 35%. The ratio of protective cover to bare ground increased from 3.1:1 to 2.2:1. Most of this change in cover can be explained by the decline in annual grasses and forbs. Percent cover of cheatgrass declined from 19% in 1995 to only 2% now. Annual forbs declined from 6% cover to 3% cover. At the same time perennial grass cover increased from 6% to 17%. Sum of nested frequency of perennial grasses remained similar. There appears to be adequate cover provided by vegetation and litter to prevent most erosion but due to the increase in unprotected bare ground the soil trend is considered slightly down. The herbaceous understory has changed noticeably from mostly annual forbs and grasses (69%), to where they now only make up 10% of the total vegetative cover. Crested wheatgrass has increased from 18% to 66% of the vegetative cover. Trend for the herbaceous understory is stable because the perennial component of the grasses showed slight improvement with a substantial decrease in the abundance annual species. The forbs showed a decrease, however they only make up 14% of the herbaceous cover and this loss was easily compensated by the increase in perennial grass nested frequency values. There are very few, if any browse species that could provide winter forage for wildlife. Trend is considered stable but in very poor condition.

TREND ASSESSMENT

soil - slightly down (2)

browse - stable (3) with few shrubs present

herbaceous understory - stable (3) with good increases for the perennial grass species

HERBACEOUS TRENDS --

Herd unit 13B, Study no: 6

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'86	'95	'00	'86	'95	'00	'95	'00
G	<i>Agropyron cristatum</i>	_b 286	_a 215	_b 255	95	75	89	5.60	14.70
G	<i>Aristida purpurea</i>	_a -	_a 1	_b 7	-	1	4	.00	.24
G	<i>Bromus tectorum</i> (a)	-	_b 365	_a 138	-	100	55	18.56	1.72
G	<i>Hilaria jamesii</i>	-	3	7	-	1	2	.15	.53
G	<i>Oryzopsis hymenoides</i>	_a -	_b 12	_b 12	-	4	4	.57	1.10
G	<i>Poa fendleriana</i>	-	2	-	-	2	-	.03	-
G	<i>Sitanion hystrix</i>	2	4	4	2	1	2	.00	.18
G	<i>Sporobolus cryptandrus</i>	-	-	2	-	-	1	-	.15
G	<i>Vulpia octoflora</i> (a)	4	3	-	1	1	-	.00	-
Total for Annual Grasses		4	368	138	1	101	55	18.57	1.72
Total for Perennial Grasses		288	237	287	97	84	102	6.37	16.90
Total for Grasses		292	605	425	98	185	157	24.95	18.63
F	<i>Astragalus mollissimus</i>	2	7	1	1	5	1	.02	.00
F	<i>Astragalus nuttallianus</i>	_a -	_b 6	_a -	-	4	-	.02	-
F	<i>Chenopodium fremontii</i> (a)	-	-	3	-	-	1	-	.00
F	<i>Cymopterus</i> spp.	-	3	6	-	1	2	.00	.01
F	<i>Draba nemorosa</i> (a)	-	6	2	-	2	1	.01	.00
F	<i>Erodium cicutarium</i> (a)	-	_b 125	_a 24	-	48	11	1.60	.39
F	<i>Euphorbia</i> spp.	_a -	_b 14	_b 13	-	7	6	.03	.10
F	<i>Lappula occidentalis</i> (a)	-	5	3	-	3	1	.01	.00
F	<i>Lactuca serriola</i>	_a -	_b 6	_{ab} 4	-	4	2	.02	.01
F	<i>Leucelene ericoides</i>	_a -	_b 28	_b 38	-	10	12	1.46	.79
F	<i>Machaeranthera</i> spp	_a -	_b 127	_a -	-	47	-	.28	-
F	<i>Medicago sativa</i>	_a 1	_b 24	_{ab} 12	1	12	6	.84	1.60
F	<i>Phlox longifolia</i>	-	-	3	-	-	1	-	.00
F	<i>Salsola iberica</i> (a)	-	1	-	-	1	-	.00	-
F	<i>Sisymbrium altissimum</i> (a)	-	_b 150	_a 2	-	65	2	1.22	.01
F	<i>Silene</i> spp.	-	5	-	-	2	-	.01	-
F	<i>Sphaeralcea coccinea</i>	-	-	3	-	-	1	-	.03
F	Unknown forb-perennial	2	-	-	1	-	-	-	-
Total for Annual Forbs		0	287	34	0	119	16	2.85	0.41
Total for Perennial Forbs		5	220	80	3	92	31	2.70	2.55
Total for Forbs		5	507	114	3	211	47	5.56	2.97

Values with different subscript letters are significantly different at % = 0.10 (annuals excluded)

BROWSE TRENDS --

Herd unit 13B, Study no: 6

Type	Species	Strip Frequency		Average Cover %	
		'95	'00	'95	'00
B	Chrysothamnus nauseosus hololeucus	1	1	.15	.15
B	Gutierrezia sarothrae	1	4	.15	.15
B	Yucca harrimaniae	5	4	.30	.30
Total for Browse		7	9	0.60	0.61

BASIC COVER --

Herd unit 13B, Study no: 6

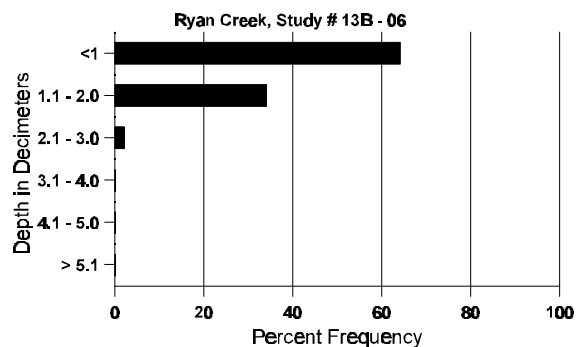
Cover Type	Nested Frequency		Average Cover %		
	'95	'00	'86	'95	'00
Vegetation	381	324	7.25	41.22	23.49
Rock	262	265	4.00	13.35	16.52
Pavement	92	242	4.00	1.11	3.95
Litter	384	365	53.00	45.07	22.25
Cryptogams	42	69	2.25	.61	1.08
Bare Ground	259	342	29.50	13.15	34.65

SOIL ANALYSIS DATA --

Herd Unit 13B, Study # 6, Study Name: Ryan Creek

Effective rooting depth (inches)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
14.30	58.6 (15.91)	7.3	64.0	15.4	20.6	4.9	7.7	80.0	1.0

Stoniness Index



PELLET GROUP FREQUENCY --

Herd unit 13B, Study no: 6

Type	Quadrat Frequency		Pellet Transect	
			Pellet Groups per Acre	Days Use per Acre (ha)
	'95	'00	00	00
Rabbit	6	38	252	N/A
Elk	12	4	122	9 (24)
Deer	17	29	261	20 (50)
Cattle	3	4	122	10 (26)

BROWSE CHARACTERISTICS --

Herd unit 13B, Study no: 6

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Artemisia tridentata wyomingensis																		
D	86	-	-	-	-	-	1	-	-	-	1	-	-	-	33		1	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'86		00%			100%			00%										
'95		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'86	33	Dec:	100%			
												'95	0		0%			
												'00	0		0%			
Atriplex canescens																		
M	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	28	27	0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	39	34	0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'86		00%			00%			00%										
'95		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'86	0	Dec:	-			
												'95	0		-			
												'00	0		-			
Chrysothamnus nauseosus hololeucus																		
M	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20	30	46	1
	00	-	-	-	1	-	-	-	-	-	1	-	-	-	20	36	63	1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'86		00%			00%			00%										
'95		00%			00%			00%			+ 0%							
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'86	0	Dec:	-			
												'95	20		-			
												'00	20		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Gutierrezia sarothrae																		
Y	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	3	-	-	-	-	-	-	-	-	3	-	-	-	60		3	
M	86	2	-	-	-	-	-	-	-	-	2	-	-	-	66	10	11	
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20	7	22	
	00	11	-	-	-	-	-	-	-	-	11	-	-	-	220	7	7	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'86		00%			00%			00%			-70%							
'95		00%			00%			00%			+93%							
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'86	66	Dec:	-			
												'95	20		-			
												'00	280		-			
Juniperus osteosperma																		
M	86	2	-	-	-	-	-	-	-	-	2	-	-	-	66	98	79	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'86		00%			00%			00%										
'95		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'86	66	Dec:	-			
												'95	0		-			
												'00	0		-			
Pinus edulis																		
Y	86	2	-	-	-	-	-	-	-	-	2	-	-	-	66		2	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	86	2	-	-	-	-	-	-	-	-	2	-	-	-	66	78	50	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'86		00%			00%			00%										
'95		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'86	132	Dec:	-			
												'95	0		-			
												'00	0		-			

A Y G R E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Yucca harrimaniae																		
M	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	33	-	-	-	-	-	-	-	-	33	-	-	-	660	10	14	33
	00	1	-	-	4	-	-	-	-	-	5	-	-	-	100	13	19	5
D	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	00	3	-	-	4	-	-	-	-	-	3	-	-	4	140			7
X	86	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	80			4
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	40			2
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'86		00%			00%			00%										
'95		00%			00%			00%			-65%							
'00		00%			00%			33%										
Total Plants/Acre (excluding Dead & Seedlings)													'86	0	Dec:	0%		
													'95	680		3%		
													'00	240		58%		